UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/040,605	12/28/2001	David Harriman	P13764	2731

59796 7590 11/15/2007

INTEL CORPORATION
c/o INTELLEVATE, LLC
P.O. BOX 52050
MINNEAPOLIS, MN 55402

EXAMINER	
CHOUDHURY, AZIZUL Q	
ART UNIT	PAPER NUMBER
2145	

MAIL DATE	DELIVERY MODE
11/15/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/040,605	HARRIMAN ET AL.	
	Examiner	Art Unit	
	Azizul Choudhury	2145	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 August 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1, 5-6, 10-11,15-16 and 37-47* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1, 5-6, 10-11,15-16 and 37-47* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *28 December 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Detailed Action

This office action is in response to the correspondence received on August 24, 2007.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 6, 11 and 37-47 are rejected under 35 U.S.C. 102(b) as being anticipated by Nakamura et al (US Patent No: 6,553,031), hereafter referred to as Nakamura.

1. With regards to claim 1, Nakamura teaches, an apparatus, comprising: a general input/output communication port to implement a communication stack *(inherently present in a network design)* including a physical layer, a data link layer and a transaction layer *(Inherent part of the OSI model and Nakamura's design supports the use of the OSI model; see column 6, lines 53-54, Nakamura)*, the transaction layer to assemble a packet header for a transaction packet, the packet header to include a format field to indicate whether the transaction packet includes a data payload *(see Figure 2, element 72, Nakamura)* and to specify a size of the packet header *(Equivalent to IHL (internet header length); see Figure 3, Nakamura)*; and a type field to specify a transaction type *(Equivalent to TOS*

(type of service)); see Figure 3, Nakamura), the transaction type to be selected from the following group of: a memory request, an input/output request, a configuration request and a message request, wherein the format field and the type field together indicate a packet type *(The updating of the sub-routing table is equivalent to a memory request since the sub-routing table is defined as memory within Nakamura's disclosure; see at least column 6, lines 1-10 and column 7, lines 1-4, Nakamura).*

2. With regards to claim 6, Nakarmura teaches an apparatus comprising: a general input/output communication port to implement a communication stack *(inherently present in a network design)* including a physical layer, a data link layer and a transaction layer *(Inherent part of the OSI model and Nakamura's design supports the use of the OSI model; see column 6, lines 53-54, Nakamura)*, the transaction layer to disassemble a packet header for a packet to be received at the general input/output communication port, the packet header to include: a format field to specify whether the packet includes a data payload *(see Figure 2, element 72, Nakamura)* and to specify a size of the packet header *(Equivalent to IHL (internet header length); see Figure 3, Nakamura)*; and a type field to specify a transaction type *(Equivalent to TOS (type of service))*, the transaction type to include at least one selected from the following group of: a memory request, an input/output request, a configuration request and a message request, an addition field to hold additional information, wherein the format field and the type field

together specify the type of additional information to be held in the additional field *(The updating of the sub-routing table is equivalent to a memory request since the sub-routing table is defined as memory within Nakamura's disclosure; see at least column 6, lines 1-10 and column 7, lines 1-4, Nakamura).*

3. With regards to claim 11, Nakamura teaches a system comprising: a transmitting device to include a general input/output communication port to implement a communication stack *(inherently present in a network design)* including a physical layer, a data link layer and a transaction layer, the transaction layer to assemble a packet header for a transaction packet the packet header *(Inherent part of the OSI model and Nakamura's design supports the use of the OSI model; see column 6, lines 53-54, Nakamura)* including: a format field to specify whether the transaction packet includes a data payload *(see Figure 2, element 72, Nakamura)* and to specify a size of the packet header *(Equivalent to IHL (internet header length)*; a type field to specify a transaction type *(Equivalent to TOS (type of service))*, the transaction type to include at least one selected from the following group of: a memory request, an input/output request, a configuration request and a message request, wherein the format field and the type field together specify the format for the packet header *(The updating of the sub-routing table is equivalent to a memory request since the sub-routing table is defined as memory within Nakamura's disclosure; see at least column 6, lines 1-10 and column 7, lines 1-4, Nakamura)*; and an additional field to hold additional

information *(Nakamura's disclosure teaches packets with additional fields; see Figure 3, Nakamura)*; and a receiving device to receive the packet header from the transmitting device the receiving device to implement the communication stack that includes the data link layer, the physical layer and the transaction layer, wherein the transaction layer is to disassemble the packet header, the transaction layer to determine a type of additional information in the additional field based on the format field and the type field together *(These last few steps are inherent steps performed by any receiving device that complies with the OSI model; see at least column 3, lines 12-20, Nakamura)*.

4. With regards to claim 37, Nakamura teaches the apparatus wherein the packet header is also to include a length field, to specify the length of the data payload in response to the format field specifying the packet includes a data payload *(Equivalent to "total length"; see Figure 3, Nakamura)*.

5. With regards to claim 38, Nakamura teaches the apparatus of claim 37, wherein the transaction layer is to compare the length of the data payload specified in the length field to an actual length of the data payload and to treat the request transaction packet as malformed request transaction packet abased on the actual length not matching the length of the data payload specified in the length field *(see "fragment offset and header check sum," Figure 3, Nakamura)*.

6. With regards to claim 39, Nakamura teaches an apparatus comprising: a general input/output communication port to implement a communication stack *(inherently present in a network design)* including a physical layer, a data link layer and a transaction layer *(Inherent part of the OSI model and Nakamura's design supports the use of the OSI model; see column 6, lines 53-54, Nakamura)*, the transaction layer to assemble a packet header for a packet to be transmitted on a serial point-to-point link, the packet header to include: a first field to indicate a size of the packet header *(Equivalent to IHL (internet header length)* and to indicate whether the packet is to include a data payload *(see Figure 2, element 72, Nakamura)*; a second field to indicate a transaction type of the packet *(Equivalent to TOS (type of service))*; and a third field to represent a length of the data payload, in response to the first field indicating the packet is to include a data payload *(Equivalent to the "total length" within the packet taught by Nakamura; see Figure 3, Nakamura)*.

7. With regards to claim 40, Nakamura teaches the apparatus wherein the packer header is also to include a fourth field to include a first type of information in response to the first and second field in combination representing a first packet type and to include a second type of information in response to the first and the second field in combination representing a second packet type *(see Time to Live, Figure 3, Nakamura)*.

8. With regards to claim 41, Nakamura teaches the apparatus wherein a fourth field to include a first type of information in response to the first and second field in combination representing a first packet type and to include a second type of information in response to the first and the second field in combination representing a second packet type the first field is a format field, the second field, is a transaction type field, and the third field is a length field *(see Time to Live, Figure 3, Nakamura)*.

9. With regards to claim 42, Nakamura teaches the apparatus wherein the fourth field, in response to the first and the second field in combination representing a third packet type, is to include a third type of information, and wherein the first packet type is a request packet type, the first type of information includes byte enable information, the second packet type is a completion packet type, the second type of information includes completion status information, the third packet type is a message packet type, and the third type of information includes message code information *(see Time to Live, Figure 3, Nakamura)*.

10. With regards to claim 43, Nakamura teaches the apparatus, wherein byte enable information includes beginning of a data payload information and end of data payload information, the beginning of a data payload information to indicate whether a first number of bytes at a beginning of the data payload are enabled and the end of data payload information to indicate whether a second number

bytes at the end of the data payload are enabled *(see flag and Fragment offset; Figure 3, Nakamura)*.

11. With regards to claim 44, Nakamura teaches the apparatus, wherein the packet header is also to include a fifth extension field to be associated with the second field in response to the first and the second field in combination representing the first packet type, and to be associated with the third field in response to the first and the second field in combination representing the second packet type *(see protocol type, Figure 3, Nakamura)*.

12. With regards to claim 45, Nakamura teaches the apparatus wherein the first packet type is selected from a group consisting of a locked memory read request, an I/O read request, and I/O write request, a configuration read type 0, a configuration write type 0, a configuration read type 1, a configuration write type 1, a completion without data, and a completion for locked memory read, and wherein the second packet type is selected from a group consisting of a completion with data, a memory read request, and a memory write request *(The updating of the sub-routing table is equivalent to a I/O write request since the sub-routing table is defined as memory within Nakamura's disclosure; see at least column 6, lines 1-10 and column 7, lines 1-4, Nakamura)*.

13. With regards to claim 46, Nakamura teaches the apparatus, wherein the packet header is also to include an additional field, wherein the additional field is selected from a group consisting of an address field, a requester ID field, a tag field, an attribute field, a completer ID field, and a virtual channel ID field *(see source ID and destination ID, Figure 3, Nakamura)*.

14. With regards to claim 47, Nakamura teaches the apparatus wherein first field further indicates if the data payload is four-byte naturally aligned and limited in size by a maximum data payload size, in response to indicating the packet is to include a data payload *(see total length, Figure 3, Nakamura)*.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 5, 10, and 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura et al (US Patent No: 6,553,031), hereafter referred to as Nakamura.

15. With regards to claims 5 and 16, Nakamura teaches the apparatus, wherein the format field and the type field are located in the first byte of the packet header, and wherein the packet type is selected from a group consisting of a memory read request, a memory write request, an input/output (IO) read request, an IO write request, a configuration read, a configuration write, a message request, a message request with data, a message for advanced switching, a completion without data, a completion with data, and a completion for lock memory read *(The updating of the sub-routing table is equivalent to a memory request since the sub-routing table is defined as memory within Nakamura's disclosure; see at least column 6, lines 1-10 and column 7, lines 1-4, Nakamura).*

While Nakamura's design teaches packets with headers featuring a format and type field within the first block (see column 5, lines 49-50, Nakamura), it does not teach the two fields being enclosed within the first byte of the header. It is however known that sizes of packets and their headers can be adjusted based on different needs of the network. This can easily be achieved by requiring fewer bits to represent information (less information needs to be stored with smaller networks) within each field. Official notice is hereby taken that it would have been obvious to one skilled in the art, to have fit both the format and type fields within the first byte of the header, for the purpose of creating a more compact header, which leads to a more compact packet and a faster network.

16. With regards to claim 10, Nakamura teaches the apparatus wherein the additional field is to hold byte enable information in response to the format field and the type field including a first value, the additional field includes completion status information in response to the format field and the type field including a second value, and the additional field includes message code information in response to the format field and the type field including a third value *(Equivalent to the Header check sum within the packet; see Figure 3, Nakamura)*.

17. With regards to claim 15, Nakamura teaches the system wherein the transaction layer to determine a type of additional information in the additional field based on the format and the type field together comprises determining the additional field is a byte enable field including byte enable information in response to the format field and type field together indicating the transaction packet is a request packet, determining the additional field is a completion status field including completion status information in response to the format field and type field together indicating the transaction packet is a completion packet *(see Header Check Sum, Figure 3, Nakamura)*, and determining the additional field is a message code field including message code information in response to the format field and type field together indicating the transaction packet is a message packet *(see Protocol Type, Figure 3, Nakamura)*.

18. The official notice applied to claims 5 and 16 are applicable to claims 10 and 15.

Response to Arguments

Applicant's arguments with respect to claims 1, 5-6, 10-11,15-16 and 37-47 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Azizul Choudhury whose telephone number is (571) 272-3909. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Cardone can be reached on (571) 272-3933. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AC

JASON CARDONE
SUPERVISORY PATENT EXAMINER